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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/035,537  | 10/23/2001  | Curtis D. Mowry      | SD6790/S96443       | 4708             |
| 20567   | 7590        | 05/04/2005           | EXAMINER            |                  |
| SANDIA CORPORATION<br>P O BOX 5800<br>MS-0161<br>ALBUQUERQUE, NM 87185-0161 |             |                      | CROSS, LATOYA I     |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 1743                |                  |

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/035,537

Applicant(s)

MOWRY ET AL.

Examiner

LaToya I. Cross

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7,9-20 and 35-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7,9-15,20 and 35-38 is/are rejected.
- 7) ☒ Claim(s) 16-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

- This Office Action is in response to Applicants' amendments filed on February 7, 2005. Claims 7, 9-19, 35-38 are pending.

#### *Claim Rejections - 35 USC § 103*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 7-15, 20 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behar et al in view of journal article "Microfabrication of membrane-based devices by HARSE and combined HARSE/wet etching" by Manginell et al.

Behar et al disclose a micropyrolyzer and method for the pyrolysis of solid or liquid samples taken in small amounts. The device comprises a tubular oven (1) having a wall inside of which defines a heating zone (3), which has attached to it a heating means (4). The heating means is a resistive heating means (col. 2, lines 63-66). The surface that the sample is heated on is preferably made of gold. A small sample is introduced into sample rod (9) and inserted into the oven. At col. 4, lines 45-50, Behar et al disclose using 25-200 micrograms of sample. Once in the heating position, the oven is heated to a temperature of 550°C. After pyrolysis, heating is stopped. A reagent, such as pentane or chloroform, is added. The vaporized products are removed

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from the trap and analyzed by a gas phase chromatography apparatus, which may be connected to the oven output. See col. 4, lines 45-50, lines 55-68 and col. 5, lines 44-51.

As a sample, Behar et al disclose hydrocarbons and oils (col. 1, lines 16-30; col. 5, lines 44-48).

Behar et al differ from the instantly claimed invention in that there is no disclosure of a micropyrolyzer having a semiconductor or dielectric substrate, with a membrane having a resistive heating element.

Manginell et al teach micro-hotplates made of thin dielectric membranes having resistive heaters fabricated thereon. Specifically, the micro-hotplates of Manginell et al are comprised of a silicon substrate coated with a silicon nitride membrane. The resistive heaters disposed on the membrane are Ti/Pt heaters. See page 2. In testing the performance of the micro-hotplate, Manginell et al found that the device heated to 200°C in less than 8msec, requiring only 54mW of applied power (page 4). Manginell et al teaches that the micro-hotplates find use in many sensing applications, including gas sensing. The devices are also advantageous due to their low heat capacity and thermal conductivity of the membrane.

It would have been obvious to one of ordinary skill in the art to perform the method of Behar et al using the micropyrolyzer device of Manginell et al due to the fast heating rate and the small amount of power required.

*Allowable Subject Matter*

2. Claims 16-19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to teach or fairly suggest a method for vaporizing a sample for analysis, as claimed, wherein the sample comprises a fatty acid and the reagent added is a methylation reagent.

*Response to Arguments*

3. Applicant's arguments filed February 7, 2005 have been fully considered but they are not persuasive. With respect to the obviousness rejection over Behar et al in view of Manginell et al, Applicants argue that neither reference teaches that a reagent may be added to the sample prior to heating.

In response, the Examiner would first like to point out that the Behar et al does teach adding a reagent to the sample. At col. 5, lines 29-43, the reference teaches that reagents such as chloroform may be added. With respect to the order in which the reagents are added (prior to heating versus after heating), Applicants would need to show some advantage in adding the reagents prior to heating. MPEP 2144.04(IV)(C)

states that selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. Applicants have failed to show any new or unexpected results in adding the reagent prior to heating.

Further, the Examiner takes the position that adding reagents to sample prior to heating would have been obvious in view of Behar et al and Manginell et al. Behar et al primarily teach pyrolysis of hydrocarbon products. At col. 5, lines 44-51, Behar et al teach that the pyrolysis products are further analyzed by means such as gas phase chromatography. Reagents are commonly added to samples to aid in analyzing products. For example, reagents that will determine the presence of trace amounts of substances (i.e. sulfurs) in hydrocarbons are commonly added to hydrocarbon samples prior to analysis. It would have been obvious to one of ordinary skill in the art to add a reagent to the samples of Behar et al prior to heating to aid in determining the presence of additional substances in the sample.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaToya I. Cross whose telephone number is 571-272-1256. The examiner can normally be reached on Monday-Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Jill Warden  
Supervisory Patent Examiner  
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